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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,124	12/27/2001	Birgit Seidel	F-7160	6341

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EXAMINER

KUHAR, ANTHONY J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 06/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/937,124	SEIDEL ET AL. <i>OJ</i>
	Examiner	Art Unit
	Anthony J Kuhar.	1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 2-11 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 2-11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.

- 4) Interview Summary (PTO-413) Paper No(s). _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2, "predetermined limits" is indefinite, see Joseph E. Seagram and Sons v. Marzall, 84 USPQ 180.

Claim 10 recites the limitation "the solids". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 6, 7, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Mollere '559.

Mollere '559 teaches in column 4 a process to form orthophosphoric acid hemihydrate seed crystals of less than 0.3 mm in length. Column 4, line 31 teaches the crystals are formed at temperatures of less than 10 C. Column 10, lines 27-69 and Figure 4 teach a crystallization

Art Unit: 1754

apparatus which operates continuously for forming crystals of phosphoric acid. Column 11, lines 1-2 teach the seed crystals are added batchwise every thirty minutes. Example one teaches that the crystallization apparatus operates at 0 C, which is at least 10 C higher than the seeding product. No other solids are fed to the crystallizer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 4, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montagna '141.

The abstract in Montagna '141 teaches introducing finely ground Na₂SO₄ crystals to a crystallizer. Example 1 also teaches a brine fed to the crystallizer consisting of sodium sulfate, ammonium sulfate, and water. Column 1, line 45 to column 2, line 6 teaches that this solution having the fine sodium sulfate crystals is crystallized to form a mixture of sodium sulfate and ammonium sulfate. They have significantly different particle sizes, which enables them to be separated and the mother liquor returned to the crystallizer, free of solids. Montagna '141 teaches the size of the seed crystals is 150-200 mesh, which is 74 to 104 microns. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, *in re Malagari*, 182 USPQ 549. Although Montagna teaches a continuous process, he does not teach the relationship between the quantity of the seed crystals added and the quantity of solids withdrawn from the crystallizer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the optimum amount of fine crystal seeds to add to the crystallizer because it is not inventive to determine the optimum or workable range which only requires routine experimentation, see *In re Boesch*, 205 USPQ 215.

Claims 6, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dmitrovsky '364.

Column 3 of Dmitrovsky '364 teaches a process where seed sugar crystals having a crystal size of 60-100 microns are combined with a feed syrup and sent to a crystallizer. Column 5 teaches massecuite is formed. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range of particle sizes disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, in re Malagari, 182 USPQ 549. There is no other solid input to the process besides the seeds.

Claims 3, 6, 7, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anjier '913.

Anjier '913 teaches in column 8 a seed generation stage of a crystallization unit, which is maintained at a temperature of 57 to 66 C to produce alumina hydrate seed. Column 11, lines 15-20 teach that additional hydrate seeds from an external source may be added to the seed generation stage. After passing through an agglomeration stage, the crystals are added to a continuous growth (crystallization) stage (see column 6, line 52 to column 7, line 63). This is maintained at a temperature of 74 to 85 C (see column 7, line 20). Claim 5 teaches the seeding stage and the growth stage are each continuous. Anjier '913 does not teach the particle size of the seeds nor does he teach the relationship between the quantity of seeds added to the growth stage and the amount of crystals withdrawn from the growth stage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the optimum

Art Unit: 1754

particle size and the quantity of seeds to add to the crystallizer because it is not inventive to determine the optimum or workable range which only requires routine experimentation, see In re Boesch, 205 USPQ 215.

Claims 3, 4, and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 93/19826.

WO 93/19826 teaches on page 3, line 23 to page 4, line 27 a crystallization process where a slurry of seed crystals are fed to a crystallization process, where the crystals are no greater than the operating temperature of the crystallizer and are fed in the amount of 4-25 % by weight of the product resulting from the crystallizer. Although WO '826 teaches at least 35% of the seed crystals are larger than 1.2 mm in size, there remains a significant portion (65%) which is smaller than 1.2 mm. Thus average seed sizes of 0.1 to 1 mm or 0.3 to 0.8 mm can be present. Column 7, line 45 teaches the feed crystals should be at least 10 C lower than the crystallization temperature. The examples teach crystallization of ammonium sulfate.

Claims 2, 4-8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61286216 A, accompanied by English language abstract.

The English language abstract of JP 61286216 A teaches seed crystals of ammonium sulfate of less than 30 mesh, which is less than 0.681 mm, are added to a tank kept at 45 C. Then a mother liquor solution was continuously passed through the tank to generate ammonium sulfate crystals. Since the seed crystals are added to the tank before the circulation of mother liquor, it appears the crystals are added batchwise to the control the amount of crystals in the crystallizer.

Art Unit: 1754

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61286216 A as applied to claims 2, 4-8, and 11 above, and further in view of WO 93/19826.

The rejection of claims 2, 4-8, and 11 as being unpatentable over WO JP 61286216 A is applied herein. JP '216 does not teach the seeds are maintained at a temperature 10 to 30 C lower than the crystallizer.

However, WO 93/19826 teaches in a very similar process for producing crystals of ammonium sulfate using seeds, that the seed material to be added should be at least 10 C cooler than the crystallizer. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to maintain the seeds at the temperature taught by WO '826 in the process of JP '216 because WO '216 provides useful information that is directly applicable to the process of JP '216 since the processes are virtually the same.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art teaches very similar crystallization processes, but do not meet at least one of the limitations of claim 7.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J Kuhar whose telephone number is 703-305-7095. The examiner can normally be reached on 8:45 am - 5:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the

Art Unit: 1754

organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AK

AK
June 13, 2003

SJB~
STEVEN BOS
PRIMARY EXAMINER
GROUP 1100